

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Carrier Current Systems, including Broadband over Power Line Systems	)	ET Docket No. 03-104
	)	
Amendment of Part 15 regarding new requirements and measurement guidelines for Access Broadband over Power Line Systems	)	ET Docket No. 04-37

**Comments of PowerWAN, Inc.**

Pursuant to Section 1.415 of the Federal Communications Commission ("FCC") Rules, PowerWAN, Inc. hereby submits comments in response to the *Notice of Proposed Rule Making* in the above referenced proceeds. PowerWAN, Inc. applauds the FCC for this action, and provides the following information in support of BPL deployment.

PowerWAN, Inc. strongly agrees with Paragraph 10 of this NPRM, that BPL offers connectivity to many locations that would otherwise not be served by other broadband technologies. This also will increase competition among broadband service providers, and allow new entrants to be brought in, as indicated by the NTIA.

As pointed out in paragraph 12, BPL will help to level the "digital divide" in making use of ubiquitous existing infrastructure to provide connectivity.

PowerWAN also strongly agrees with Paragraph 13, in that BPL enables new services to provide better management of the power delivery infrastructure. This will also become a part of the value of BPL to the electric power providers, and the public. As the electric power grid uses more sources of power generation and supply, including distributed generation, a communications channel along the power lines becomes an important part of safety and security. As better monitoring of the power grid becomes a reality, due to BPL, faster and better outage management control will become an important result. Restoration of power during a disaster scenario is the major necessity, and methods that lower the outage time are always necessary and welcome.

PowerWAN's BPL system uses time division duplex methods for separation of various users' transmissions. This means that there is only one entity transmitting at a given time in a given area, and that transmissions cannot add together at a victim receiver. The BPL signals also drop off rapidly with distance, so that additive effects are minimal from adjacent systems.

Amateur radio bands are notched in the PowerWAN system, so as to provide additional suppression in these areas. It should be noted that there are amateur radio operators who also have BPL systems in their homes and neighborhoods, and are satisfied that the

systems do coexist without major difficulties. PowerWAN also has not seen the PowerWAN system to be susceptible to amateur transmitters operating in the same area. Other areas can be notched out of the PowerWAN frequencies of use, but this should be done at places in the spectrum where the frequencies and services are actually being used, and are not allocations for services left over from days past.

PowerWAN also believes that spectrum pooling, similar to the concepts of what are being considered for 3G wireless communications, could be a candidate for BPL<sup>1</sup>. There are several similarities between the technologies and services which make this idea worth considering.

It should also be pointed out that the PowerWAN BPL system is designed to serve the last portions of a mile to a residence or business, and can support several types of backhaul facilities, such as fiber, broadband wireless, broadband satellite, cable, DSL, etc., and therefore, economically viable in many different environments and locations, including rural communities.

A ubiquitous network as provided by BPL also becomes another communication infrastructure, which can be utilized during emergencies. It is also worth noting that the power infrastructure is likely better maintained than other communication service infrastructures, and due to its primary purpose of delivering power, is very robust.

PowerWAN has found that power lines are very inefficient as antennas, and that they tend to act much like point source radiators. PowerWAN limits its frequency band to less than 50 MHz.

PowerWAN agrees with the equipment verification procedure for FCC part 15 compliance, and believes that the measurement methodologies proposed in the NPRM are adequate and meet the needs of the various parties. PowerWAN also agrees that the FCC proposal to exempt Access BPL systems from the existing conducted emission limits of Section 15.107(c) is prudent, while still protecting other users and services.

Adaptive interference mitigation techniques, such as frequency notching and shutdown of particular network elements, are feasible, and employed today in PowerWAN systems. These techniques should be used prudently, as the cost and complexity of the equipment will be affected as more requirements are specified. PowerWAN also believes that a particular specification as to frequencies of operation, and other specific control mechanisms, are not necessary. The modulation and interference mitigation techniques that make BPL feasible in the first place, are by nature, adaptable.

BPL systems that are deployed today, or in the near future, without interference problems or complaints, should not be required to be replaced when new rules are introduced. This is due to the fact that BPL systems are deployed on a neighborhood-by-neighborhood basis, and can, and likely will, be upgraded as necessary, as communication throughput, capacity, and other service requirements change.

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<sup>1</sup> See IEEE Communications Magazine, March, 2004, Radio Communications Supplement, Pages S8-S14

As a particular local power provider's involvement will always be required in order to install BPL equipment, and the fact that BPL signals have been shown to be point source radiators with limited distance,<sup>2</sup> it is extremely likely that an interference problem would be easily localized to a particular vendor and power company. This makes the need for having a large, national database unnecessary. If there is an interference issue, the local power provider could be notified, similar to the way that this works today for power line interference issues. They would then verify and work with the vendor to correct the issue.

PowerWAN agrees with the FCC's proposed measurement guidelines and in-situ testing at three different sites each for both overhead and underground locations. Making measurements at power line height, however, brings up major safety issues, and would also be of great concern to the utility companies involved, especially at a 10 meter distance from the power line. PowerWAN believes that an alternative to power line height radiation measurements, especially at small distances from a POWER LINE, is required.

Again, PowerWAN would like to thank the FCC for this NPRM, and for support of this communication technology.

Respectfully Submitted,

**PowerWAN, Inc.**

By: -----

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<sup>2</sup> See Fletcher, Heald, and Hildreth letter to the FCC in reply to ET Docket No. 03-104, on behalf of Current Technologies, dated 2/5/2004, page 3, Table 1.